

Pedestrian Safety at Intersections

Although intersections represent a very small percentage of U.S. surface road mileage, more than one in five pedestrian deaths is the result of a collision with a vehicle at an intersection. An average of 5,475 pedestrians died in traffic crashes annually between 1990 and 2000.¹

Overview

The Year 2000 National Highway Traffic Safety Administration pedestrian crash facts are as follows:

- 4,739 pedestrians were killed in traffic crashes.
- On average, a pedestrian is killed in a traffic crash every 111 minutes.
- 78,000 pedestrians were injured in traffic crashes.
- On average, a pedestrian is injured in a traffic crash every seven minutes.
- Most pedestrian crashes occurred in urban areas (71 percent), at non-intersection locations (78 percent), in normal weather conditions (91 percent) and at night (64 percent).
- Almost one-fourth (23 percent) of all children between the ages of five and nine years who were killed in traffic crashes were pedestrians.
- Studies have shown that children under the age of 10 are not yet capable of crossing a roadway alone. Young children have not fully developed an awareness of the direction of sound (e.g., an approaching car), peripheral vision, focus and concentration levels, or proper judgment of a car's speed and distance until after the age of 10.
- Older pedestrians (ages 70 and above) accounted for 17 percent of all pedestrian fatalities and 6 percent of all pedestrian injuries.
- 42 percent of all young pedestrian fatalities (under age 16) occurred between 4 p.m. and 8 p.m.
- Alcohol involvement—either for the driver or for the pedestrian—was reported in 47 percent of the traffic crashes that resulted in pedestrian fatalities.

In 2000, 4,739 pedestrians were killed in traffic crashes in the United States. On average, a pedestrian is killed in a traffic crash every 111 minutes.

Pedestrian Safety Problems at Intersections

Hazardous intersection types for pedestrian crossings include high-volume, high-speed and multi-lane intersections with complex signal phasing or without any traffic control at all.

Pedestrians are at risk even at simple stop sign or yield sign intersections because of the common disregard of traffic control devices by motorists.

Pedestrians have not been accorded equal status with vehicles at intersections. Roadways have been designed and constructed primarily to accommodate vehicular traffic rather than pedestrians.

Traffic improvements that include widening streets, adding lanes, and using traffic engineering solutions that increase vehicular efficiency can decrease pedestrian safety.

A high percentage of pedestrians, especially in large urban areas, regularly violate pedestrian traffic control and place themselves at risk of collisions with motor vehicles.²

About one-third of fatal collisions with pedestrians is the result of pedestrians disobeying intersection traffic control or making dangerous judgments in attempting to cross a street.³

Pedestrian traffic control violations generally receive low levels of enforcement.

The design and improvement of roadways often fail to meet the needs of pedestrians of all ages and



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capabilities for safely crossing intersections, including older persons, young children and those with impaired vision or difficulty in walking.

Many intersection reconstruction projects and traffic control installations have increased the distances that one must walk to cross at an intersection. Intersection signal timings may be too short to permit safe intersection crossings. Traffic engineers may use a walking speed that is too fast for many pedestrians in determining the necessary time for pedestrians to cross the street.

Crash data consistently show that collisions with pedestrians occur far more often with turning vehicles than with straight-through traffic. Left-turning vehicles are more often involved in pedestrian accidents than right-turning vehicles, partly because drivers are not able to see pedestrians to the left as well.⁴

Pedestrians involved in crashes are more likely to be killed as vehicle speed increases. The fatality rate for a pedestrian hit by a car at 20 mph is 5 percent. The fatality rate rises to 80 percent when vehicle speed is increased to 40 mph.⁵

Right turn on red (RTOR) contributes to pedestrian crashes because it creates reduced pedestrian opportunities to cross intersections without having to confront turning vehicles.

Pedestrian visibility to drivers is much poorer during hours of darkness, especially in areas where there is poor lighting on the road. This is a common shortcoming of rural and suburban intersections.

How Can We Reduce Pedestrian Injuries and Fatalities at Intersections?

Visibility. Pedestrians need to make themselves more visible during evening and nighttime hours. One way to do this is to wear reflective clothing and accessories.

Coordination among engineers, educators and enforcement personnel. Improved pedestrian safety at intersections requires coordination among public authorities, professional engineers, media,

education experts and vehicle designers to reduce both the number and severity of pedestrian collisions. Pedestrian safety cannot be improved by traffic engineering alone.

Focus enforcement on:

- Motorist compliance with pedestrian safety laws;
- Pedestrian compliance; and
- Reducing speeding through intersections.

Education. Develop a sustained, comprehensive public awareness campaign that reaches both motorists and pedestrians.

Pedestrian signal timing/pedestrian signals:

- Re-assess the adequacy of pedestrian-signal timings;
- Consider pedestrian-only phasing in a traffic signal cycle; and
- Ensure that the pedestrian signal is visible and that any push-buttons are accessible. Signals may be supplemented with audible messages for visually impaired persons.

“Stop for Pedestrians” paddle signs can be placed at the roadway centerline at crosswalks without signals in central business districts and other areas of high pedestrian activity to reinforce the right-of-way of pedestrians.

Identify and decrease road and traffic hazards:

- Repair/re-stripe crosswalks and stop lines;
- Improve lighting;
- Provide additional signage where necessary;
- Install barriers such as fences, shrubs, or uncomfortable median surfaces to discourage pedestrians from crossing at unsafe locations;
- Provide a wide refuge island on a median with fencing; and
- Make crosswalk improvements such as:
 - A ladder pattern that is more visible to motorists;
 - Crosswalks with flashing lights embedded in the roadway pavement; and
 - Flashing “Pedestrian Crossing” signs that alert oncoming traffic to pedestrians in the crosswalk.

¹ Insurance Institute for Highway Safety, Pedestrian Fatality Facts, May 2002.

² Insurance Institute for Highway Safety, Q&A: Pedestrians, December 2000.

³ FARS, 2000.

⁴ Insurance Institute for Highway Safety, Q&A: Pedestrians, December 2000.

⁵ Insurance Institute for Highway Safety, Status Report 35 (5), May 13, 2000.